

**REMARKS**

This Amendment, filed in reply to the Office Action dated October 18, 2005, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 1-23 remain pending in the application. Claims 1-21 have been rejected under 35 U.S.C. § 102 as being anticipated by Shimura. Claims 22-23 have been rejected under 35 U.S.C. § 103 as being unpatentable over Shimura. Applicant respectfully submits the following arguments in traversal of the prior art rejections.

Applicant's invention relates to an improvement for processing images formed with different energy levels of a common subject. Conventionally, the different energy levels may undergo one or more subtraction processes to improve contrast in areas of interest. In order to perform the subtraction, it is necessary to align reference points in high energy level and low energy level images. In situations where multiple subtractions were performed, the realignment needed to be performed multiple times, thereby slowing down the processing.

Applicant's invention overcomes the above deficiencies. Referring to Fig. 1, for example, a reference correction device 12 corrects the position of the disparate energy level signals which is stored to memory 14. The data can be used upon performance of a second energy subtraction by simple transfer of data without having to perform the image position correcting processing again, thereby providing a faster output.

Turning to the newly cited art, Shimura relates to processing images of different energy levels, including multiple subtraction. The subtraction can include a first subtraction whereby

the high and low image signals are weighted by a first set of coefficients and a second subtraction whereby the high and low image signals are weighted by a second set of coefficients. Col. 15. As a further feature of Shimura the high and low energy signals become added to each other, as it is believed that such a superposed signal would have less noise effects than the high and low energy signals individually. Fig. 9 shows two subtraction processes performed on low and high energy images (41, 42) in parallel.

The Examiner contends that Shimura teaches each feature of independent claim 1. Applicant submits that Shimura does not explicitly teach that the second energy subtraction is performed by utilization of the pair of corrected original image signals which have been obtained at the time of the first energy subtraction. Though the Examiner relies on Fig. 9 to teach features of the claim, it is noted that Fig. 9 shows the first and second subtraction as effectively a parallel process, and not one in which the corrected images are shared between the subtractions. The general discussion of first and second subtractions being performed (at col. 15-16) does not indicate that the second subtraction reuses corrected data obtained at the time of the first subtraction. By contrast, claim 1 describes that the second uses those signals corrected for the first subtraction.

Additionally, in an exemplary embodiment, the invention includes that the position adjusted images are utilized by both the first subtraction processing and the second subtraction processing. On the other hand, Shimura does not disclose that the position adjusted images are shared by the first subtraction processing and the second subtraction processing.

The present invention recites that the first subtraction processing and the second subtraction processing each creates a different subtraction image for observation. On the other hand, Shimura discloses that only the second subtraction processing creates an image for observation, and the first subtraction processing creates data to be used in the second subtraction processing.

The differences between the invention and Shimura are illustrated in the attached Appendix.

Claim 1 is patentable for at least these reasons.

Because claim 5 includes features analogous to that set forth for claim 1, claim 5 is also patentable for the reasons set forth above. The remaining claims are patentable based on their dependency.

With further regard to claim 2, this claim describes that the corrected image is stored, and the second subtraction uses the stored data. The Examiner relies on Cols. 18-19 to teach this aspect of the claims. However, cols. 18-19 refer to storage of high and low signals individually and not the corrected image signals specifically. Claims 6-7, 11-12, 15-16, 18, 20, and 23 are patentable for similar reasons.

The Examiner's reliance on Official Notice for the teaching of signal transfer devices does not make up for the above deficiencies in Shimura.

Applicant adds claims 24-27 to describe features of the invention more particularly.

AMENDMENT UNDER 37 C.F.R. § 1.111  
Appln. No.: 10/026,433

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In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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CUSTOMER NUMBER

  
Susan Perng Pan  
Registration No. 41,239

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